Clusterized and 3D Mapped LED Control — Coming Soon!

Propagate VE is a new kind of LED control platform — built from the ground up around real physics, real 3D space, and truly decentralized compute. It's designed for the stages, festivals, and immersive installations where existing tools hit their limits.

The Problem with Today's LED Tools

Traditional LED software treats your installation as a flat canvas. You design an effect on a 2D screen, then "map" it onto your physical setup. The result? Effects that look great in the preview but feel disconnected from the actual space they inhabit.

Propagate VE takes a fundamentally different approach.

Real Wave Physics in Real 3D Space

At the heart of Propagate is **PropagateCore** — a physics-based wave propagation engine that computes actual distances, actual travel times, and actual wave behavior for every single LED in your installation.

Instead of rendering a 2D pattern and sampling pixels, Propagate simulates waves expanding through three-dimensional space — just like sound or light in the real world. When you place an activator in the middle of your stage, waves ripple outward and reach each LED strip at exactly the right moment based on its physical position.

What this means for your shows:

- Effects that feel spatially coherent — audiences sense the depth, not just the color
- Waves that wrap around structures, cascade across ceilings, and flow through 3D architecture naturally
- Full ADSR envelope shaping per wave — control the attack, sustain, and decay of every ripple
- Multiple wave types and blend modes for layering complex, evolving scenes

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Decentralized Computing — Scale Without Limits

Most LED control systems run on a single machine. That works for a bar install. It doesn't work for a festival with tens of thousands of LEDs spread across multiple stages.

Propagate is built on a **decentralized, clusterized architecture**. The compute distributes across nodes, meaning:

- **Massive installations become trivial** — add more nodes, control more LEDs. No single machine bottleneck.
- **True real-time at any scale** — wave physics calculations are parallelized across the cluster, maintaining frame-perfect synchronization even with enormous LED counts.
- **Resilient by design** — distributed nodes mean no single point of failure during a live show.
- **Deploy anywhere** — nodes can run on local hardware at the venue, connected over high-speed networking (10G Ethernet, WiFi 6), adapting to each venue's infrastructure.

This isn't a theoretical roadmap. The architecture is decentralized from day one — designed to grow from a single-room prototype to a multi-stage festival without rethinking the stack.

Audio-Reactive — From the Booth to the LEDs

Coming soon.

Propagate is being built with deep audio integration at its core:

- **Direct DJ hardware connectivity** — planned integration with Pioneer CDJ and turntable systems via the PRO DJ LINK protocol, pulling BPM, beat phase, and track data straight from the decks.
- **System audio capture** — tap into any audio source on the network for instant reactivity during development and testing.
- **Hardware audio interfaces** — professional ASIO support for low-latency audio input from interfaces like the Scarlett 2i2.
- **Network audio streaming** — receive audio over UDP for flexible, distributed setups where the audio source and the LED controller aren't in the same room.

The goal: your LEDs don't just follow the music — they *feel* it, with wave physics shaping how sound translates into light across your entire physical space.

Built for Professionals, Designed to Inspire

Propagate VE pairs the PropagateCore engine with a **Unity-based 3D visual editor** where you design your installation exactly as it exists in physical space — placing LED strips, defining dimensions, positioning activators, and previewing the result in real time before a single LED is powered on.

Combined with industry-standard output over **Art-Net protocol**, Propagate slots into existing professional workflows and hardware ecosystems.

What's Next

We're actively building toward a first release. If you're a lighting designer, festival producer, or creative technologist who's tired of fighting flat tools in a 3D world — we'd love to hear from you.

contact@propagate.solutions

Stay tuned. The wave is coming.

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